The Stormy Atlantic

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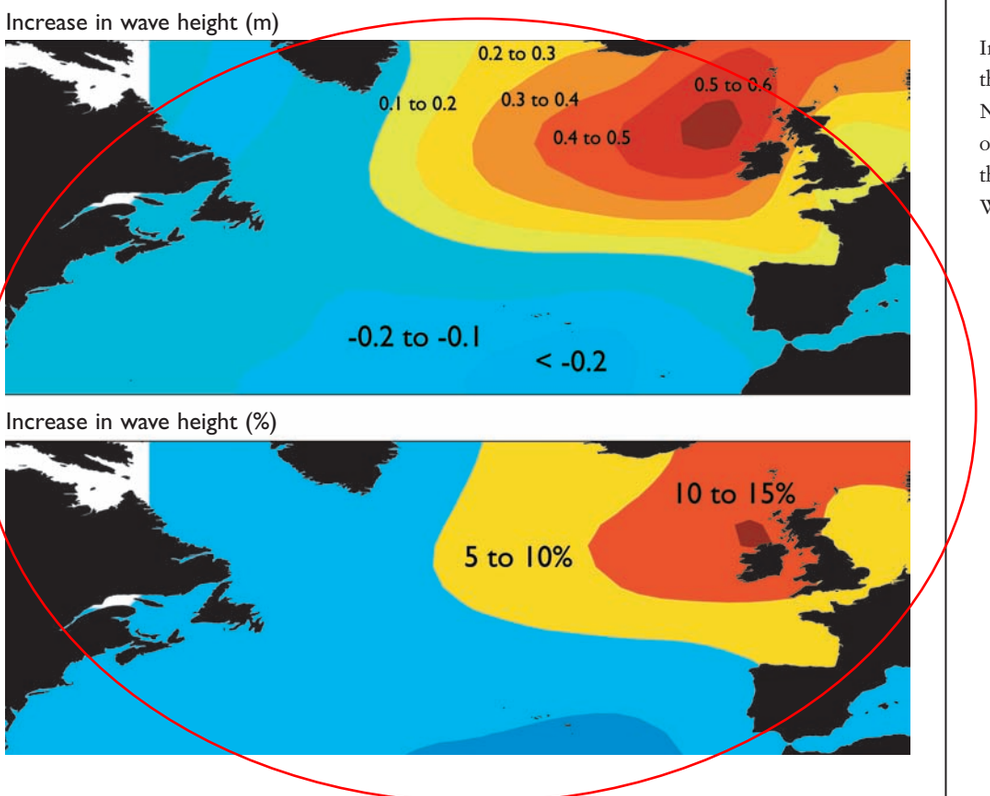
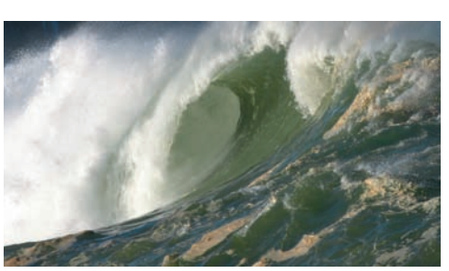
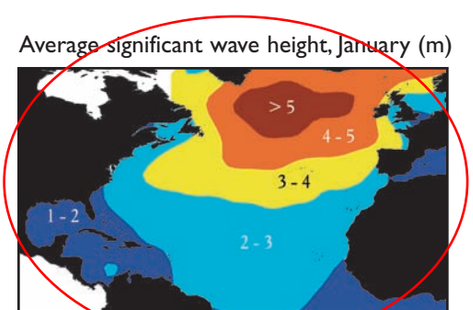


Inferred change in wave height between the late 1960s and early 1990s due to the North Atlantic Oscillation. Many historical observations can now be understood from the history of the NAO. (Figures by David Woolf, National Oceanography Center.)

Images of strong winds and huge waves threatening the life of seafarers or battering coastal defenses are part of the winter scene. In common with the rest of our weather, it is impossible to predict individual storms more than a few days in advance. However, there is some prospect of being able to predict unusually stormy winters in advance, and to prepare for their impact. The ability to describe waves over the breadth of the oceans will help us to reach that goal.

Satellite altimetry provides global measurements of wave height. Previously, buoy and ship measurements were available only at few scattered sites, mainly near land. Now we can observe from Space the pattern of wave activity over the entire surface of the oceans. This enables us to detect seasonal changes and variations between years.





[LEFT] Breaking waves. Large waves at the coast can destroy sea walls and lead to coastal flooding. Will this become more common in the future? (Photograph from iStockphoto by Paul Topp.)

[RIGHT] Average significant wave height (meters). From satellite altimeter measurements we can confirm that waves are generally largest in the winter when they usually exceed 5 meters (16 feet) in height in the central North Atlantic. (Figure by David Woolf, National Oceanography Center.)